Smithers, Rhodesia's Director of National Museums, encouraged the serious minded to study birds and other classes of animals and made museum facilities, chiefly the study collections and library, readily available to those who needed them. Secondly, Gerrie Broekhuysen, at the University of Cape Town, was the first African academic with a strong interest in birds and those who studied zoology under him were often influenced in this direction. Thirdly, the FitzPatrick Institute was founded in 1959 at the University of Cape Town by Cecily Niven in honour of her father. The first Director was Jack Winterbottom and he was succeeded in 1971 by Roy Siegfried. It is the only institute of ornithology in Africa, or indeed anywhere, south of the equator and while it is mainly orientated to an academic approach, it covers all the levels that were discussed above. It has also been the leading proponent in South Africa of the approach that birds are only intelligible as parts of ecosystems. Finally, the *Ostrich*, which has had a succession of editors (Jack Vincent, Gerrie Broekhuysen, Bunty Rowan, Alan Kemp and the present incumbent, Gordon Maclean) who have sought to improve the standard of its form and contents and have been largely successful in this.

The latest development in South Africa is the increasing attention paid to seabird studies, not only in the continental shelf but also on Marion Island far to the south, an island which has the second richest fauna of breeding seabirds in the Southern Ocean.

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Fifty years of ornithology in the Malagasy Faunal Region

by C. W. Benson

The Malagasy Region is taken as the area in the western Indian Ocean from Madagascar and the Mascarene Islands north to the Seychelles and the Chagos Archipelago, sufficiently distinct from Africa to merit regional rank (Moreau, *in* Thomson (Ed.) *New Dict. Birds* 1964: 443–444). There is a survey of work in the Indian Ocean as a whole by Bourne (*J. Marine Biol. Assoc. India* 14(2), 1972: 609–627), while for a general bibliography (including birds) of the northern part of the more restricted area here considered see Peters & Lionnet (*Atoll Res. Bull.* 165, 1973). Consideration of space precludes coverage of but a fraction of the recent literature, although as many key references as possible are included. Since we are dealing with discrete islands or archipelagos, some division is necessary.

Madagascar

By far the largest area is Madagascar. The modern era began with the Franco-Anglo-American Expedition of 1929–32, under the aegis respectively of J. Delacour, Dr P. R. Lowe and Dr L. C. Sanford. The result was a series of short notes and reports, culminating in the paper by Rand (*Bull. Amer. Mus. Nat. Hist.* 72, 1936: 143–499). It is a mine of information on distribution and ecology, although collecting in the 19th century had provided a fairly complete inventory of species. Even so, since 1930 six species have been described for the first time, namely *Randia pseudozosterops* and *Newtonia*

archboldi Delacour & Berlioz (1931), *N. fanovanae* Gyldenstolpe (1933), *Neodrepanis hypoxantha* Salomonsen (1933), *Monticola bensoni* Farkas (1971) and *Phyllastrephus apperti* Colston (1972). *Newtonia fanovanae* is still known from but a single specimen – maybe it lives in the canopy of dense evergreen forest, and escapes notice. This may also apply to the *Neodrepanis,* of which there is no published evidence of its existence since 1929 (Benson, *Bull. Brit. Orn. Cl.* 1974: 141–143).

The general characteristics of the land birds have been discussed by Moreau (*The Bird Faunas of Africa and its Islands,* 1966: 327–344) and by Dorst (*in* Battistini & Richard-Vindard (Eds), *Biogeography and Ecology in Madagascar,* 1972: 615–627). As many as 5 endemic families still extant are recognised by some authors, and many more such genera and species. Most of their ancestors arrived by flying across the Mozambique Channel, but some came from Asia, island-hopping being aided by such archipelagos as the Seychelles. A point not brought out by Moreau or Dorst is that the ratite family, the Aepyornithidae, which may have survived until 400 years ago, did not arrive by flying. Probably it existed before Madagascar was separated from Africa about the late Cretaceous (Cracraft, *J. Zool. Lond.* 169, 1973: 475, 527; *Ibis,* 1974: 514).

Both Moreau and Dorst emphasise Madagascar's strong ecological diversity. In the east the rainfall is very high (up to 3500 mm *per annum* in the northeast), and the original vegetation was dense evergreen forest (much of which has been cleared for cultivation). In the west, separated from the east by a spine of highlands, now denuded of forest, the rainfall is much less, and savanna predominates. In the southwest annual rainfall is less than 500 mm, and sub-desert scrub prevails. This diversity would have favoured speciation within the island, as exemplified by the endemic Vangidae (12 species) and the endemic genus *Coua* (Cuculidae, 10 species).

Between the international expedition of 1929–32 and World War II, little field work was undertaken, except by L. Lavauden, who furthermore published in 1937 a supplement to Milne-Edwards & Grandidier's voluminous work of 1882–85. There is one paper resulting from military service (V. D. van Someren, *Ibis* 1947: 235–267). Since the war there has been a revival, thanks especially to O. Appert, P. Griveaud, P. Malzy, Ph. Milon, R. Paulian, R. P. Paulian and J. Salvan. In 1973 there appeared the *Faune de Madagascar. Oiseaux,* by Milon, Petter & Randrianasolo. It is fully illustrated and useful as a field identification guide, but too bulky for the pocket. The results of some further work, by Charles-Dominique, Dhondt, also by Colebrook-Robjent, Williams and myself, have been published in *L'Oiseau et R.F.O.,* 1975–77. The atlases of speciation in African birds (Hall & Moreau 1970 and Snow (Ed.) 1978) shed light on the origins of some species. Further work, by G. S. Keith, A. D. Forbes-Watson and D. A. Turner, for the most part still awaits publication. Conservation of the habitat of this unique avifauna is an outstandingly pressing problem – particularly the forests of the humid east, since forest birds are singularly ill-adapted to withstand environmental changes.

The Mascarene Islands

Réunion, Mauritius and Rodriguez are famous for the endemic family, the Raphidae (dodos and solitaires – if in fact 3 discrete families are not

involved – cf. Storer, *Auk* 1970: 369–370). Each island had its own flightless form (the Réunion one only known from illustrations and travellers' accounts), all extinct for more than 200 years, killed off by meat-hungry sailors. Many other species have long disappeared, and are known only from bones. The worst sufferers were Mauritius and Rodriguez.

Even now the survival of some species is the cause of grave anxiety, for example on Mauritius the endemic kestrel *Falco punctatus* and on Rodriguez the endemic fody *Foudia flavicans*. The avifauna of Mauritius in particular now, indeed, consists largely of introduced species. The ecology and evolution of the white-eyes of Réunion and Mauritius, fortunately still not endangered, have been studied in a series of papers by R. W. Storer and F. B. Gill, most recently by Gill (*Auk* 1971: 35–60; *A.O.U. Monogr.* 12, 1973). On Réunion, the endemic harrier has been studied by Clouet (*L'Oiseau et R.F.O.* 1978: 95–106, as *Circus aeruginosus maillardi*). There is a general account of the islands by Staub (*Birds of the Mascarenes and Saint Brandon*, 1976). During 1974–75 there was a B.O.U. expedition to the Mascarenes, organised by P. Hogg and led by A. S. Cheke, the other members being G. S. Cowles, Mrs. J. Horne and S. A. Temple (studying respectively fossil material, vocalisations and endangered species). The results will surely shed much further light on the avifauna of the islands, and are to be published as a special number of the *Ibis* in 1980.

Comoro Islands

Virtually no information had been forthcoming from the Comoro Islands since the 19th century, and so as part of the B.O.U. centenary celebrations an expedition went there in 1958, the members being P. Griveaud, my wife and myself. The results were published in 1960 (Benson, *Ibis* 103b: 5–106). Despite forest destruction (worst on Anjouan), no evidence was obtained of any extinctions, except perhaps for 2 endemic subspecies on Anjouan. Considerable ecological information was collected (little existed previously). One new species of warbler, *Nesillas mariae*, was described from Moheli, and a probable new species of scops owl, *Otus pauliani*, from Grand Comoro, though the status of the owl requires confirmation from tape-recordings of its voice (Marshall, *A.O.U. Monogr.* 25, 1978: 18). Further short visits have included one by Forbes-Watson (*Atoll. Res. Bull.* 128, 1969) and Salvan (*Alauda* 1972: 18–22).

Aldabra

This is the least disturbed elevated-limestone island in the Indian Ocean. In 1965 plans were made by the British Government for an air staging post on the atoll – in the event the proposal was dropped in 1967 for financial reasons, but not before considerable outcry. The Royal Society made proposals for the preservation of Aldabra for scientific study, organised a series of expeditions directed by Dr. D. R. Stoddart, and by 1971 had completed a research station, to be handed over in 1980 to the Government of the Seychelles, of which Aldabra is now politically a part. Ornithology has figured prominently in these activities. The first workers were A. W. Diamond (sea birds), M. J. Penny (land and shore birds) and myself (land birds): for reports, see *Phil. Trans. Roy. Soc.* B260, 1971: 417–571. In addition, certain species have received special attention: *Phaethon* spp. (Diamond, *Auk*

1975: 16–39); *Sula sula* (Diamond, *Ardea* 1974: 196–218); *Fregata* spp. (Diamond, *Ibis* 1975: 302–323); *Dryolimnas cuvieri* (most recently, Huxley & Wilkinson, *Ibis* 1979: 265–273); *Centropus toulou* (Frith, *Ostrich* 1975: 251-257; R. Woodell, *Ibis* 1976: 263–268); *Foudia eminentissima* (Frith, *Ibis* 1976: 155–178). Publication is awaited (in *Phil. Trans. Roy. Soc.* B286) of a study by R. P. Prys-Jones of *Nesillas aldabranus*, only known by a few pairs on a limited area, and only discovered in 1967. Other studies include a review of the species of *Ibidoecus* parasitic on *Threskiornis*, including *T. aethiopica abbotti* endemic to Aldabra (Clay, *Syst. Ent.* 1, 1976: 1–7); the vegetation of sea bird colonies (Gillham, *Atoll Res. Bull.* 200, 1977); and descriptions of a new duck and small procellarid, from pleistocene remains (Harrison & Walker, *J. Nat. Hist.* 12, 1978: 7–14). The birds of certain islands east to *Farquhar* and northeast to the *Amirante* Islands have been surveyed in Stoddart (Ed.) (*Atoll Res. Bull.* 136, 1970), and of the *Iles Glorieuses* by Benson, Beamish, Jouanin, Salvan & Watson (*ibid.* 176, 1975), while for an account of the former existence of *Dryolimnas cuvieri* on Astove, in the Aldabra Archipelago, see Stoddart (*Bull. Brit. Orn. Cl.* 1971: 145–146).

Seychelles Archipelago

Conservation and research have evoked as much concern in the Seychelles as on Aldabra. Except for the 2 northern outliers, Bird and Dennis Islands, the components are of granitic origin. They were inaccessible from the outside world by air until 1971, since when a flourishing tourist industry has developed, also enabling the 4th Pan-African Ornithological Congress to be held on Mahé in 1976; but clearly this has accentuated the conservation problem. Two endemics, *Psittacula eupatria wardi* and *Zosterops mayottensis semiflava*, had apparently become extinct in the 1890's, while the stock of the endemic *Streptopelia picturata rostrata* has been so diluted by the introduction of *S. p. picturata* as to only survive more or less pure on Cousin and Cousine. Recent moves include the purchase of Cousin in 1968, from funds raised through the International Council for Bird Preservation and the World Wildlife Fund, and of Aride in 1973 by C. Cadbury for the Society for the Promotion of Nature Conservation. Both islands are important as sanctuaries for breeding sea birds, Cousin also as a refuge for *Bebrornis seychellensis*, which is increasing in numbers, as is *Terpsiphone corvina* under protection on La Digue. The most recent report on conservation in the Seychelles, by the I.C.B.P., is no. 5, June 1976.

Penny's book *The Birds of Seychelles* (1974) is the only pocket field guide for any part of the Malagasy Region, and actually takes in the islands as far south as the Farquhar and Aldabra groups. The only land birds in the granitic Seychelles to have received special study before this book was in preparation were the 2 *Foudia* spp. (Crook, *Ibis* 1961: 517–548). The following further studies, albeit briefer, deserve mention: *Bubulcus ibis* (Feare, *Ibis* 1975: 388); *Falco araea* (Feare, Temple & Procter, *Ibis* 1974: 548–551); *Hypsipetes crassirostris* (Greig-Smith, *Ostrich* 1979: 45–58); *Copsychus seychellarum* (Wilson & Wilson, *Bull. Brit. Orn. Cl.* 1978: 15–21); *Terpsiphone corvina* (Fraser, *Ibis* 1972: 399–401; Greig-Smith, *Bull. Brit. Orn. Cl.* 1978: 41–43); *Acridotheres tristis* (Feare, *J. Bombay Nat. Hist. Soc.* 1976: 525–527); *Zosterops modesta* (most recently, Greig-Smith, *Ibis* 1979: 344–348). There has also been much information on migrants, thus see Turner & Forbes-Watson

(*Bull. Brit. Orn. Cl.* 1976: 57–58); Penry (*ibid.* 1977: 120–121); Ebenhard (*ibid.* 1979: 39–40); Feare (*ibid.* 1979: 75–77); Feare & High (*Ibis* 1977: 323–338). Feare (*Ibis* 1974: 543–545) has discussed mangrove utilization. For 40 years there has been concern that the farming of the eggs of the tern *Sterna fuscata,* collected and sold commercially on Mahé, was being carried to excess. In fact the largest source of supply is not in the Seychelles proper (where the largest colonies are on Bird Island and Aride, now protected by the owners), but on Desneufs in the Amirantes. The problem has been lately thoroughly studied by Feare (most recently *Biol. Cons.* 10, 1976: 169–181). Various other terns, as well as 2 *Puffinus* spp. and *Phaethon lepturus*, breed in the Seychelles. On the other hand *Sula dactylatra* and *S. leucogaster,* which formerly bred on Bird Island, no longer do so. Sadly, this is merely part of a general decline amongst the boobies in the western Indian Ocean (Feare, *Biol. Cons.* 14, 1978: 295–305). For certain misconceptions about sea birds in Penny's book (particularly the occurrence of *Stern balaenarum*), see Feare & Bourne (*Ostrich* 1978: 64–66). Due for publication in 1980, Stoddart (Ed.) (*Biogeography and Ecology of the Seychelles Islands*) will contain papers on both land and sea birds.

Chagos Archipelago

The birds of these islands have been discussed by Bourne (*Atoll Res. Bull.* 149, 1971: 175–207). Sea birds predominate, and discounting *Butorides striatus* there is no land bird which might not have been man-introduced. Hutson (*ibid.* 175, 1975) records observations confined to Diego Garcia.

The pelagic distribution of sea birds in the western Indian Ocean has been studied by Bailey (*Ibis* 1968: 493-519), from his observations during the International Indian Ocean Expedition on board the "Discovery" in 1963 and 1964. Covering the same area, this author (*J. Marine Biol. Assoc. India* 14(2), 1972: 628–642) has discussed their breeding seasons, species composition, density at sea and migrations.

One may conclude by stressing the increasing activity in the Malagasy Region since the turn of the century. The following figures of publications relevant are some index: 1900–29, 64; 1930–39, 60; 1940–49, 30; 1950–59, 60; 1960–69, 97; 1970–79, 169. The low figure for 1940–49 is largely attributable to World War II.

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Indian Ornithology: The Current Trends

by Salim Ali

A general interest in birds as pets or for sport was inherent in mediaeval India, though by and large perhaps as rather an elitist activity. Some of the noblemen of the Moghul court and the emperors themselves, particularly Babur the founder of the dynasty, and his great grandson Jahangir, were accomplished naturalists as their own memoirs and contemporary records of